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13 October 1958

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PROGRESS REPORT SEP 58, RD-602 25X1

Washington, D. C.

Attention: Mr. [REDACTED]

Enclosure: (A) Progress Reports for the
Month of September 1958,
in quintuplicate

Gentlemen:

As required, Enclosure (A), described above, is submitted
detailing the progress achieved during the month of September 1958.

In the event further information is desired concerning the
enclosed reports, do not hesitate to contact the writer.

Very truly yours,

[REDACTED]
Contract Administrator
NKG:js

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Sept 58
FileTRANSPORTABLE INFLATABLE ANTENNA

Purpose: The scope of this project is to design, develop, and test one antenna system for the 350-10,000 mc range and to fabricate and deliver five complete antenna systems with indoor mounts and two interchangeable outdoor mounts.

Personnel: Electrical Engineer: Mechanical Engineer:

Status: The phase center of the logarithmically periodic primary feed antenna mentioned in last month's report was located for various values of ψ angle (15 to 120 degrees in 15 degree steps) at a single frequency. It was observed that the phase center appeared very near the apex of the structure when the ψ angle was about 120 degrees. This is unfortunate because the front to back ratio of a structure with a ψ angle of 120 degrees is very poor; such a structure could not be used as a primary feed. Therefore, it will be necessary to investigate the effect on the pattern characteristics of the dish as a function of a deviation of phase center of the primary feed from the focal point of the dish.

Future Plans: The literature will be checked to determine what has been learned in previous investigations as to the effect on the pattern characteristics of a parabolic reflector when the phase center of the primary feed does not coincide with the focal point of the reflector. A setup for recording the patterns of a dish with its primary feed will be made. Work will be done on the design of the inflatable dish and its mount during the next month.

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TRANSPORTABLE INFLATABLE ANTENNA

RD-605)

Purpose: The scope of this project is to design, develop, and test one antenna system for the 350 - 10000 mc range and to fabricate and deliver five complete antenna systems with indoor mounts and two interchangeable outdoor mounts.

Personnel: Electrical Engineer:
Mechanical Engineer:

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Status: During the last month a model of the proposed logarithmically periodic primary feed antenna for the 6.5 ft. dish was constructed. Patterns were taken on this model over the frequency range of 350 to 6500 mc. The average E-Plane beamwidth at the 3 db points was about 65° and the beamwidth at the 10 db points was about 110 degrees. In order to illuminate the dish with a 10 db taper, the focal length to diameter ratio of the dish will be about .5.

The equipment for measuring the phase center of the primary feed is set up.

Future Plans: The phase center of the above mentioned primary feed will be located for various ψ angles (ψ is the angle between the two half structures). This is the parameter which appears to have the greatest amount of control in varying the distance of the phase center from the apex of the structure. As explained in last month's report, the ideal condition is to locate the phase center at the apex

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